



Abstract

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An electromagnetic valve comprising a housing having a fluid containing region and first and second ports in communication with the region, an electromagnet carried by the housing located external to the fluid containing region, and a thin diaphragm of fluid impermeable material which hermetically isolates the electromagnet from the fluid containing region. An armature is movably positioned in the region and has a pole portion located for magnetic attraction by the electromagnet and has a plunger portion provided with a valve formation for opening and closing one of the ports to place both ports in fluid communication through the fluid containing region of the housing and to block fluid communication between the ports. The armature is moved from a rest position through a forward stroke when attracted by the electromagnet to change the control state of the valve, and the armature is moved by a biasing spring in an opposite direction through a return stroke back to the rest position. The armature pole portion is of a material selected to achieve a desirable balance between fluid compatibility and magnetic properties for rapid and effective valve operation. Passages in the barrier and the armature pole portion allow the rapid valve movement and accommodate bubbles in the fluid, the armature is provided with structure for effectively guiding the same, and a valve seat structure resists fluid leaks.

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